WHAT IS CLAIMED IS:

1. A bias voltage generating circuit, comprising:

a first constant current generating part generating a constant current;

a first transistor of a first conductivity type including a first current electrode to which a first potential is supplied through said first constant current generating part, a second current electrode and a control electrode; and

a second transistor of a second conductivity type different from said first conductivity type including a first current electrode to which a second potential different from said first potential is supplied, a second current electrode connected with said second current electrode of said first transistor and a control electrode connected with said second current electrode of said first transistor, wherein

said constant current flows between said first and second current electrodes of said first transistor and between said first and second current electrodes of said second transistor,

a voltage signal is inputted to said control electrode of said first transistor and

a potential at said second current electrode of said second transistor functions as a first bias voltage.

2. The bias voltage generating circuit according to claim 1, wherein

said first constant current generating part includes

a current source generating a current of a certain value and

a current mirror circuit that said first potential is supplied, generating a mirror current of a similar value to that of said current generated in said current source and letting said mirror current flow to said first current electrode of said first transistor as said

constant current.

3. The bias voltage generating circuit according to claim 1, wherein

said first constant current generating part includes

a current source generating a current of a certain value,

a first current mirror circuit to which said second potential is supplied, generating a first mirror current of a similar value to that of said current generated in said current source and

a second current mirror circuit to which said first potential is supplied, generating a second mirror current of a similar value to that of said first mirror current and letting said second mirror current flow to said first current electrode of said first transistor as said constant current.

4. The bias voltage generating circuit according to claim 3, further comprising:

a third transistor of said first conductivity type standing between said first and second current mirror circuits and including a first and a second current electrodes and a control electrode, wherein

said first mirror current flows between said first and second current electrodes of said third transistor and

said voltage signal or other voltage signal is inputted to said control electrode of said third transistor.

5. The bias voltage generating circuit according to claim 1, further comprising:

a second constant current generating part generating other constant current of a similar value to that of said constant current generated in said first current generating part;

a fourth transistor of said second conductivity type including a first current electrode to which said second potential is supplied through said second constant current generating part, a second current electrode and a control electrode and

a fifth transistor of said first conductivity type including a first current electrode to which said first potential is supplied, a second current electrode connected with said second current electrode of said fourth transistor and a control electrode connected with said second current electrode of said fourth transistor, wherein

said other constant current flows between said first and second current electrodes of said fourth transistor and between said first and second current electrodes of said fifth transistor,

said voltage signal is inputted to said control electrode of said fourth transistor and

a potential at said second current electrode of said fifth transistor functions as a second bias voltage.

6. The bias voltage generating circuit according to claim 5, wherein

said first constant current generating part includes

a current source generating a current of a certain value and

a first current mirror circuit to which said first potential is supplied, generating a first mirror current of a similar value to that of said current generated in said current source and letting said first mirror current flow to said first current electrode of said first transistor as said constant current, and

said second constant current generating part includes

said current source,

a second current mirror circuit to which said first potential is supplied and generating a second mirror current of a similar value to that of said current generated in said current source and

a third current mirror circuit to which said second potential is supplied, generating a third mirror current of a similar value to that of said second mirror current and letting said third mirror current flow to said first current electrode of said fourth transistor as said other constant current.

7. The bias voltage generating circuit according to claim 6, further comprising:

a sixth transistor of said first conductivity type standing between said second and third current mirror circuits and including a first and a second current electrodes and a control electrode, wherein

said second mirror current flows between said first and second current electrodes of said sixth transistor and

said voltage signal or other voltage signal is inputted to said control electrode of said sixth transistor.

8. The bias voltage generating circuit according to claim 1, further comprising:

a seventh transistor of said second conductivity type including a first current electrode to which said second potential is supplied, a second current electrode and a control electrode connected with said control electrode of said second transistor;

an eighth transistor of said second conductivity type including a first current electrode connected with said second current electrode of said seventh transistor, a second current electrode and a control electrode; and

a ninth transistor of said first conductivity type including a first current electrode to which said first potential is supplied, a second current electrode connected with said second current electrode of said eighth transistor and a control electrode connected with said second current electrode of said eighth transistor, wherein

said second transistor and said seventh transistor constitute a fourth current mirror circuit,

said fourth current mirror circuit generates other constant current of a similar value to that of said constant current,

said other constant current flows between said first and second current electrodes of said eighth transistor and between said first and second current electrodes of said ninth transistor,

said voltage signal is inputted to said control electrode of said eighth transistor and

a potential at said second current electrode of said ninth transistor functions as a second bias voltage.

9. A differential amplifier, comprising:

a bias voltage generating circuit according to claim 1 and

a differential amplifier circuit having a tenth transistor including a first and second current electrodes and a control electrode as a constant current circuit, wherein

a reference voltage signal and an input voltage signal are inputted to said differential amplifier circuit,

said reference voltage signal is also inputted to said control electrode of said first transistor as said voltage signal and

said first bias voltage is inputted to said control electrode of said tenth transistor.

10. A differential amplifier, comprising:

a bias voltage generating circuit according to claim 5,

a differential amplifier circuit having an eleventh transistor of said second conductivity type including a first and second current electrodes and a control electrode as a constant current circuit and

other differential amplifier circuit having a twelfth transistor of said first conductivity type including a first and second current electrodes and a control electrode as other constant current circuit, wherein

both a reference voltage signal and an input voltage signal are inputted to said differential amplifier circuit and said other differential amplifier circuit, respectively,

said reference voltage signal is also inputted to said control electrode of said first and fourth transistors as said voltage signal, respectively,

said first bias voltage is inputted to said control electrode of said eleventh transistor and

said second bias voltage is inputted to said control electrode of said twelfth transistor.

11. A differential amplifier, comprising:

a bias voltage generating circuit according to claim 8,

a differential amplifier circuit having a thirteenth transistor of said second

conductivity type including a first and second current electrodes and a control electrode as a constant current circuit and

other differential amplifier circuit having a fourteenth transistor of said first conductivity type including a first and second current electrodes and a control electrode as other constant current circuit, wherein

both a reference voltage signal and an input voltage signal are inputted to said differential amplifier circuit and said other differential amplifier circuit, respectively,

said reference voltage signal is also inputted to said control electrode of said first and eighth transistors as said voltage signal, respectively,

said first bias voltage is inputted to said control electrode of said thirteenth transistor and

said second bias voltage is inputted to said control electrode of said fourteenth transistor.